US Nat'l application under 35 USC 371
Corresponding to I/A No. PCT/IB03/02509
Preliminary Amendment (co-filed with National Application) dated December 22, 2004

## Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

## **Listing of Claims:**

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- (currently amended) Method A method to write in Flash flash type memory
  of an electronic module characterized in that it consists in comprising
  associating at least two physical areas of said memory, called mirror areas,
  with the same logical area and during a write in said logical area, in
  programming the content of said logical area in one of said blank mirror
  areas, called the active area.
- 2. (currently amended) Method The method according to claim1, characterized in that it consists in comprising erasing the content of all mirror areas used in a single operation at a convenient time.
- 3. (currently amended) Method-The method according to claim 2, characterized in that it consists in comprising performing the erasure during a period of inactivity or when all the mirror physical areas are used.
- 4. (currently amended) Method The method according to one of claims 1 to 3, characterized in that it consists in comprising copying the active physical area into a buffer area, in erasing all mirror physical areas and in copying the buffer into the first area available.
- 5. (currently amended) Method The method according to one of claims 1 to 3, characterized in that it consists in comprising performing the erasure and programming/read operations in parallel without blocking the system.
- 6. (currently amended) Method-The method according to claim 5, characterized in that it consists in comprising performing the erasure and programming/read operations in parallel in a bi-bank memory, each bank having mirror area(s), one bank being used for programming/reading whilst Page 3 of 9



- while the other bank is erased, the method changing active bank when all mirror areas of the bank used for programming/read have been used.
- 7. (currently amended) Method The method according to one of claims 1 to 6 claim 1, 2, or 3, characterized in that it consists in comprising designating said active physical areas using a counter incremented on each change of active area.
- 8. (currently amended) Method The method according to one of claims 1 to 7 claim 1, 2, or 3, characterized in that it consists in comprising associating at least one bit with a logical area representing the use state of at least one mirror physical area of said logical area.
- 9. (currently amended) Method The method according to one of claims 1 to 7 claim 1, 2, or 3, characterized in that wherein the write is carried out in an active physical area if the content of the logical area is identical to the content of the active physical area or when said write involves no erasure, and in a blank physical area otherwise.
- 10. (currently amended) <u>Method The method according to claim 9</u>, <u>characterized</u> in that it consists in <u>comprising</u> programming only part of the logical area in the blank physical area.
- 11. (currently amended) Electronic An electronic module having information processing means and comprising a FLASH flash type non volatile memory characterized in that it comprises having a mirror memory formed from at least two physical areas and associated with the same logical area, each new programming operation in said logical area taking place in an area of the blank mirror area.
- 12. (currently amended) Card A card characterized in that it includes comprising an electronic module according to claim 11 having information processing means and comprising a flash type non volatile memory having a mirror memory formed from at least two physical areas and associated with the same logical area, each new programming operation in said logical area taking place in an area of the blank mirror area.

- 13. (currently amended) Computer program including A computer program comprising program code instructions to execute the method according to one of claims 1 to 10 when said program is run in a data processing system cause a microprocessor to write in a flash type memory of an electronic module, wherein the computer program instructions comprise instruction for associating at least two physical areas of said memory, called mirror areas, with the same logical area and during a write in said logical area, in programming the content of said logical area in one of said blank mirror areas, called the active area.
- 14. (new) The method according to claim 5, comprising designating said active physical areas using a counter incremented on each change of active area.
- 15. (new) The method according to claim 6, comprising designating said active physical areas using a counter incremented on each change of active area.
- 16. (new) The method according to claim 5, comprising associating at least one bit with a logical area representing the use state of at least one mirror physical area of said logical area.
- 17. (new) The method according to claim 6, comprising associating at least one bit with a logical area representing the use state of at least one mirror physical area of said logical area.
- 18. (new) The method according to claim 7, comprising associating at least one bit with a logical area representing the use state of at least one mirror physical area of said logical area.
- 19. (new) The method according to claim 5, wherein the write is carried out in an active physical area if the content of the logical area is identical to the content of the active physical area or when said write involves no erasure, and in a blank physical area otherwise.
- 20. (new) The method according to claim 6, wherein the write is carried out in an active physical area if the content of the logical area is identical to the content of the active physical area or when said write involves no erasure, and in a blank physical area otherwise.

- 21. (new) The method according to claim 7, wherein the write is carried out in an active physical area if the content of the logical area is identical to the content of the active physical area or when said write involves no erasure, and in a blank physical area otherwise.
- 22. (new) The method according to claim 19, comprising programming only part of the logical area in the blank physical area.
- 23. (new) The computer program of claim 13, wherein the computer program instructions further comprise instructions to erase the content of all mirror areas used in a single operation at a convenient time.
- 24. (new) The computer program of claim 23, wherein the computer program instructions further comprise instructions to, when erasing the content of all mirror areas used in a single operation at a convenient time, performing the erasure during a period of inactivity or when all the mirror physical areas are used.
- 25. (new) The computer program of claim 13, 23, or 24 wherein the computer program instructions further comprise instructions to copy the active physical area into a buffer area, erasing all mirror physical areas, and copying the buffer into the first area available.
- 26. (new) The computer program of claim 13, 23, or 24 wherein the computer program instructions further comprise instructions to perform the erasure and programming/read operations in parallel without blocking the system.
- 27. (new) The computer program of claim 26, wherein the computer program instructions further comprise instructions to perform the erasure and programming/read operations in parallel in a bi-bank memory, each bank having mirror area(s), one bank being used for programming/reading while the other bank is erased, the method changing active bank when all mirror areas of the bank used for programming/read have been used.
- 28. (new) The computer program of claim 13, 23, or 26 wherein the computer program instructions further comprise instructions to designate said active physical areas using a counter incremented on each change of active area.

- 29. (new) The computer program of claim 13, 23, or 24 wherein the computer program instructions further comprise instructions to associate at least one bit with a logical area representing the use state of at least one mirror physical area of said logical area.
- 30. (new) The computer program of claim 13, 23, or 24 wherein the computer program instructions further comprise instructions wherein the write is carried out in an active physical area if the content of the logical area is identical to the content of the active physical area or when said write involves no erasure, and in a blank physical area otherwise.
- 31. (new) The computer program of claim 13, 23, or 24 wherein the computer program instructions further comprise instructions to program only part of the logical area in the blank physical area.